

## CLAIMS

1. A position sensor, comprising:
  - a housing;
  - a main gear located within said housing;
  - a ring shield located within said housing, said ring shield comprising a ring shield wall;
    - a plate connected to said ring shield wall;
    - an axle connected to said plate in perpendicular relation thereto;
  - and
  - an auxiliary gear located within said housing, said auxiliary gear being rotatably mounted to said axle, said main gear being gearingly meshed with said auxiliary gear;
    - wherein rotation of said main gear causes rotation of said auxiliary gear, and wherein said auxiliary gear is bearingly supported on said axle.
2. The sensor of Claim 1, wherein said axle is disposed at an axial center of said ring shield; and wherein said auxiliary gear is free of contact with respect to said ring shield.
3. The sensor of Claim 2, wherein said ring shield wall comprises:
  - a low rise portion adjacent said main gear; and
  - a high rise portion distally disposed in relation to said main gear;

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wherein said plate is connected to said high rise portion of said ring shield wall.

4. The sensor of Claim 3, wherein a wall edge of said ring shield wall demarcates said high and low rise portions; and wherein said plate is truncated by a truncation edge, the wall edge coinciding with the truncation edge.

5. The sensor of Claim 4, further comprising:  
a first annular magnet located within said main gear;  
a second annular magnet located within said auxiliary gear; and  
sensing electronics within said housing detecting magnetic field  
rotation of the first and second magnets, respectively, in response to an induced  
rotation of said main gear.

6. A position sensor, comprising:  
a housing;  
a main gear located within said housing;  
a ring shield located within said housing, said ring shield  
5 comprising a ring shield wall;  
a plate connected to said ring shield wall;  
an axle connected to said plate in perpendicular relation thereto;  
and  
an auxiliary gear located within said housing, said auxiliary gear  
10 being rotatably mounted to said axle, said main gear being gearingly meshed  
with said auxiliary gear;  
wherein rotation of said main gear causes rotation of said  
auxiliary gear, wherein said auxiliary gear is bearingly supported on said axle;  
and wherein said auxiliary gear is free of contact with respect to said ring shield.

7. The sensor of Claim 6, wherein said ring shield wall comprises:

5 a low rise portion adjacent said main gear; and  
a high rise portion distally disposed in relation to said main gear;  
wherein said plate is connected to said high rise portion of said ring shield wall; and

wherein a wall edge of said ring shield wall demarcates said high and low rise portions; and wherein said plate is truncated by a truncation edge, the wall edge coinciding with the truncation edge.

8. The sensor of Claim 7, wherein said axle is disposed at an axial center of said ring shield.

9. The sensor of Claim 8, further comprising:  
a first annular magnet located within said main gear;  
a second annular magnet located within said auxiliary gear; and  
sensing electronics within said housing detecting magnetic field  
5 rotation of the first and second magnets, respectively, in response to an induced rotation of said main gear.

10. A position sensor, comprising:  
a housing;  
a main gear located within said housing;  
a ring shield located within said housing, said ring shield  
5 comprising a ring shield wall having a low rise portion adjacent said main gear; and a high rise portion distally disposed in relation to said main gear;  
a plate connected to said high rise portion of said ring shield wall;

an axle connected to said plate in perpendicular relation thereto;

10 and

an auxiliary gear located within said housing, said auxiliary gear being rotatably mounted to said axle, said main gear being gearingly meshed with said auxiliary gear;

15 wherein rotation of said main gear causes rotation of said auxiliary gear, wherein said auxiliary gear is bearingly supported on said axle; wherein said auxiliary gear is free of contact with respect to said ring shield, and wherein a wall edge of said ring shield wall demarcates said high and low rise portions; and wherein said plate is truncated by a truncation edge, the wall edge coinciding with the truncation edge.

11. The sensor of Claim 10, further comprising:

a first annular magnet located within said main gear;  
a second annular magnet located within said auxiliary gear; and  
sensing electronics within said housing detecting magnetic field  
5 rotation of the first and second magnets, respectively, in response to an induced rotation of said main gear.